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THE ZOOLOGIST:

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OF

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AND

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t any former period. The ballot for four new members of the Council then took lace, when F. Bond, Esq., J. Curtis, Esq., J. Lubbock, Esq., and J. O. Westwood, sq., were elected in the room of W. S. Dallas, Esq., W. W. Saunders, Esq., S. J. Vilkinson, Esq., and W. Wing, Esq., and the following gentlemen were then elected fficers for the year: John Curtis, Esq., F.L.S., &c., President; Samuel Stevens, Esq., .L.S., Treasurer; J. W. Douglas, Esq., and Edwin Shepherd, Esq., Secretaries.

The President delivered the following Address, for which and his services to the ociety during the last two years the Meeting passed a cordial vote of thanks, and equested he would allow the Address to be printed.

Votes of thanks were also passed to Mr. Stevens and Mr. Douglas for their services n the respective offices of Treasurer and Secretary.

THE PRESIDENT'S ADDRESS.

GENTLEMEN,

Time with that rigid punctuality, which disregards alike human haste and human delay, relieves me to-night of those honourable duties with which you have entrusted me; and, permitted by custom, I indulge in a retrospective glance at our progress during the past year.

From the Report of the Library and Cabinet Committee you have learned that our books and collections are in good preservation, but that the exotic insects are in an unsatisfactory state as regards arrangement and naming; an invitation is held out, to such of you as are willing to give your services, to join the Committee and take part in this most desirable labour, and I sincerely hope I shall hear of members voluntarily coming forward and applying themselves to the task: I believe I may even now hint to the Society an offer by Mr. Smith to undertake the arrangement of the Hymenoptera, and we know that there is no member of our Society so capable of accomplishing the task.

I have particularly to congratulate the Society on the state of its finances as disclosed in the Auditor's Report just read: two years ago, owing to unusual and perhaps unavoidable outlay, the Society had incurred a debt which was only liquidated a few days before I came into office by the generous contributions of several of its members, but I am fortunate, peculiarly fortunate, in having presided over the Society for a period of two years during which it has been entirely self-supporting, during which the Chancellor of our Exchequer has drawn from legitimate sources all the funds requisite for the maintenance of our position, and now exhibits a large surplus applicable to our future requirements. I lay great stress on these facts, because I believe that all societies dependent on accidental, eleemosynary, or any extraneous support whatsoever, contain in themselves the elements of dissolution.

It appears that during the year we have elected ten members and three subscribers, and that we have lost three members by resignation and one by death, and one subscriber by resignation, thus giving us during the year an increase of six members and of two subscribers, a state of affairs on which I think we have every reason to congratulate ourselves: we have also elected, as corresponding members, Mr. Bates and Mr. Wallace, of whose indefatigable industry I said so much on the occasion of my last addressing you, and whose claims on us for the little courtesy thus rendered them will be freely admitted by all of you.

It is my painful duty to say a few words of that member of whom death has deprived us, on the very threshold of what appeared to all a brilliant and a prosperous career.

William Wing in early life was distinguished for his love of Natural History and for the care and accuracy with which he depicted natural objects: in the capacity of an artist he was frequently employed by Dr. Gray, of the British Museum, and the range of objects he delineated was very extensive: by degrees he appears to have turned his attention more and more to Entomology. In 1847 he was elected a member of our Society, and during the last and preceding years he filled the office of one of our Secretaries, but for many months he has been disqualified by illness from attending to the onerous duties which that office entails. He continued to employ his pencil in the cause of Science, and many of the illustrations of the Catalogues of the British Museum, of the Transactions of the Linnean, Zoological, and Entomological Societies, and of several other publications, are the work of his hands: a paper of my own, just published in the Transactions of our Society, owes any value it may possess to the surpassing accuracy with which he depicted the perfect insects, and the artistic skill with which, from very slender materials, he contrived to give most life-like figures of the larvæ. The illustrations of Mr. Stainton's volume on Tineina are also by his pencil, and his last effort was to draw the figures of Goniodoma auroguttella and Nepticula Weaveri for Mr. Stainton's 'Entomologist's Annual.' About twelve months ago a disease that almost always proves fatal exhibited itself, and this, acting on a constitution predisposed to consumption, terminated his life on the 9th of the present month, while in his 28th year. He was distinguished throughout his brief life by the most amiable and obliging manners, and he will be equally regretted for the amenity of his disposition and his skill as an artist: we have no one who can fill that department in science which his death leaves vacant. Mr. Wing was a Fellow of the Linnean Society, having been elected in 1852. I am only aware of two entomological papers that he has written: these are intituled

Characters of Three New Genera and Species of Lepidoptera. Proc. Zool. Soc. 1854, p. 104.

Descriptions of some Hermaphrodite British Lepidoptera, with figures of the Insects. Trans. Ent. Soc. v. 119.

I must here notice the loss which our Science, although not our Society, has sustained, in four other deaths which have occurred during the year.

Abel Ingpen was born on the 20th of May, 1796: he very early evinced a strong predilection for Entomology, and not only collected with indefatigable industry, but was remarkably careful and neat in his method of nomenclature and arrangement: the success of his labours is proved by the fact that in 1826, or less than twenty-eight years ago, he sold to the Manchester Museum a collection of British insects, of his own making, for the sum of £100: he again made a most valuable collection, not only of insects, but also of shells, fossils, birds' eggs, prints, rare books, &c., all which were arranged and preserved with the utmost neatness and care. He was elected an Associate of the Linnean Society in 1826, and was very regular in his attendance of the meetings of that learned body: he was an original member of the Entomological Society, and for years took an active part in its proceedings, but resigned his membership in 1849. He was also a member of the Microscopical Society, being devotedly fond of the microscope, and having made valuable observations on the structure of the scales on the wings of Lepidoptera. Mr. Ingpen was the author of the little work intituled 'Instructions for Collecting, Rearing and Preserving British and Foreign Insects, and for Collecting and Preserving Crustacea and Shells,' a neat, useful and extremely portable volume, which has gone through two editions, and which ought to be in the hands of every entomologist: to all who have written on "collecting" it forms what might be called the base of operations, and is more practical and more readily understandable than anything in our own language on the same subject. I find one paper by Mr. Ingpen in the Transactions of our Society,* intituled "Remarks on the

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* Vol. i. p. 174.

Destruction of Cocci." Mr. Ingpen was also an enthusiast in Horticulture, and contributed many articles to the 'Gardener's Magazine' and 'Horticultural Magazine.' His garden was so well stocked with rarities, and kept in such exquisite order, that the late Mr. Loudon paid it a visit for the express purpose of describing it in the 'Gardener's Magazine.' He died of cholera, at his residence at Chelsea, on the 14th of September, 1854, in the 58th year of his age. He was a man of mild and inoffensive character, and was beloved and respected by all who enjoyed his friendship. By far the greater part of Mr. Ingpen's contributions to science being strictly anonymous, I am unable to give any of their titles, with the exception of those above mentioned.

George Newport, whose name stands first and almost alone as a British physiological entomologist, was born at Canterbury on the 14th of February, 1803, and was apprenticed to his father, a wheelwright, residing in that city. His taste for Natural History was early noticed, and he was appointed to the Curatorship of the Natural History Museum immediately on its establishment: the decided bent of his inclinations, thus evinced, led to a dislike of business and to a preference for the study of medicine; he consequently became a pupil of Mr. Weekes, of Sandwich, and soon afterwards came to London to attend lectures at the London University: here he wrote a paper on the Nervous System of Sphinx Ligustri, and on the changes it undergoes while the insect is progressing to maturity. This essay was read before the Royal Society, and printed in the 'Philosophical Transactions.' No sooner was it known than its merits were admitted, and the author was at once acknowledged to be the most profound physiological entomologist that this country has produced. This remarkable essay is distinguished by the elaborate and conscientious care with which the most minute details are worked out, and it is worthy of record that many of the delicate and difficult dissections were made with the assistance of a single lens. Papers of a similar character rapidly succeeded each other, and occupied him almost up to the hour of his death: of these I can only give the titles; a volume might be occupied in critically analyzing the works themselves. He was elected a member of the Entomological Society in 1835, and filled the President's chair in 1843 and 1844, but resigned his membership in 1848: he was also a Fellow of the Royal and Linnean Societies. While engaged in his researches on the changes which the ovum of the frog undergoes during its development, it became necessary to examine the living objects in all their stages; and in his zeal to procure these, during the chilly months of February and March, he is supposed to have contracted that fever which terminated his life: he died at his residence in Cambridge Street, Hyde Park, on the 6th of April, 1854. I cannot conclude this notice more appropriately than in the words of Mr. Bell:— "He loved and followed Science for her own sake; and if occasionally he appeared somewhat tenacious of his opinions and over-anxious for his own fame, surely this was pardonable in one who gave up all for the pursuit of knowledge, depriving himself without a murmur of even the most common comforts, that he might devote himself the more unreservedly to the one noble object of his life. He worked for knowledge and perhaps for fame; but he never prostituted science to gain, nor mingled ignoble motives with his pursuits."

List of Mr. Newport's Scientific Papers.

On the Nervous System of the Sphinx Ligustri, and the changes which it undergoes during a part of the Metamorphoses of the Insect. Phil. Trans. cxxii. 383, and cxxiv. 389.

On the Respiration of Insects. Id. cxxvi. 529.

On the Temperature of Insects, and its connexion with the Functions of Respiration and Circulation in this Class of Invertebrated Animals. Id. cxxvii. 259.

On the Organs of Reproduction and the Development of the Myriapoda (1st Series). Id. cxxxi. 99.

On the Structure, Relations and Development of the Nervous and Circulatory Systems, and on the Existence of a complete Circulation of the Blood in Vessels in Myriapoda and Macrourous Crustacea. Id. cxxxiii. 243.

On the Reproduction of Lost Parts in Myriapoda and Insecta. Id. cxxxiv. 283.

On the Impregnation of the Ovum in Amphibia. Proc. Roy. Soc. v. 971; vi. 82, 171.

On the Respiratory Organs of the Common Leach (*Hirudo officinalis*) and their connexion with the Circulatory System. Id. iii. 206.

Monograph of the Class Myriapoda, Order Chilopoda, with Observations on the General Arrangement of the Articulata. Linn. Trans. xix. 265 and 349.

On the Aqueous Vapour expelled from Bee-hives. Id. xx. 277.

Note on the Generation of Aphides. Id. xx. 281.

On the Natural History, Anatomy and Development of the Oil-beetle (*Meloë*), more especially of Meloë cicatricosus of Leach.—First Memoir: The Natural History of Meloë. Id. xx. 297.—Second Memoir: The History and General Anatomy of Meloë, and its Affinities, compared with those of Strepsiptera and Anoplura, with reference to the connexion which exists between Structure, Function and Instinct. Id. xx. 321.—Third Memoir: The External Anatomy of Meloë in its relation to the Laws of Development. Id. xxi. 167.

On Cryptophagus cellaris of Paykull. Id. xx. 351.

On the Formation of the Air-sacs and dilated Tracheæ in Insects. Id. xx. 419.

On the Anatomy and Affinities of Pteronarcys regalis of Newman, with a Postscript containing Descriptions of some American Perlidæ, together with Notes on their Habits. Id. xx. 425.

The Anatomy and Development of certain Chalcididæ and Ichneumonidæ, compared with their Special Economy and Instincts; with Descriptions of a New Genus and Species of Bee-Parasites. Id. xxi. 61 and 85.

Further Observations on the Genus Anthophorabia. Id. xxi. 79.

Further Observations on the Habits of Monodontomerus; with some Account of a New Acarus (*Heteropus ventricosus*), a Parasite in the Nests of Anthophora retusa. Id. xxi. 95.

On the Ocelli in the Genus Anthophorabia. Id. xxi. 161.

On the Predaceous Habits of the Common Wasp (*Vespa vulgaris*, L.) Ent. Trans. i. 228.

On the Use of the Antennæ in Insects. Id. ii. 229.

On the Habits and Structure of the Nests of Gregarious Hymenoptera, particularly those of the Hive-Bee and Hornet. Id. iii. 183.

On the Habits of Megachile centuncularis. Id. iv. 1.

On the means by which the Honey-Bee finds its way back to the Hive. Id. iv. 57.

Address to the Entomological Society at the Anniversary Meeting, 1844. Id. 1845.

On Iulus Sandvicensis et I. pilosus. Proc. Ent. Soc. Lond. 1842.

On the Parasitic Habits of Nomadæ. Id. 1842.

On some New Genera of the Class Myriapoda. Proc. Zool. Soc. x. 177.

On the Anatomy of certain Structures in Myriapoda and Arachnida which have been thought to belong to the Nervous System. Lond. Med. Gaz. 1838, p. 970.

A List of the Species of Myriapoda Chilopoda contained in the Cabinets of the British Museum, with Synoptic Descriptions of 47 New Species. Ann. & Mag. Nat. Hist. xiii. 94 and 263.

On the Genus Atya of Leach, with Descriptions of four apparently New Species. Id. xix. 158.

The Article "Insecta" in Todd's 'Cyclopædia of Anatomy and Physiology,' iv. 853—994.

Observations on the Anatomy, Habits and Economy of Athalia centifoliæ, the Saw-fly of the Turnip, and on the means which have been adopted for the prevention of its Ravages; being a Prize Essay proposed by the Entomological Society of London in conjunction with the Agricultural Society of Saffron Walden.

Major Champion recently died at Scutari of wounds received in the Crimea: twenty years ago he was well known to the readers of the 'Entomological Magazine,' under the pseudonym of "Ionicus," by his admirable papers on the economy of certain Cephalonian insects, published in the third volume of that Journal: it is true that some of the statements there published related to facts previously familiar to entomologists, yet described with great care and evident originality; others, for instance the fact that Brachinus græcus explodes with its mouth, I have not seen elsewhere. "On the approach of danger," wrote the author, "this insect salivates and a bubble appears at its mouth; on contact with the air it explodes with a considerable report, and gaseous matter may be seen rising up like smoke: * * * on being immersed in boiling water to kill it, it let off one of these explosions, and the water for about an inch around it effervesced much in the same manner as a Seidlitz powder." Major Champion collected botanical as well as entomological specimens, not only in Greece, but also in China and Ceylon. In the second volume of the new series of our 'Transactions,' he is spoken of by Mr. Bowring as "a very zealous entomologist:" he discovered many new Coleoptera, some of which are described by Mr. Westwood in our 'Transactions,' and one is named after him Callirhipis Championii. Major Champion's scientific papers are as follow:—

Notes on Various Insects. By Ionicus. Ent. Mag. iii. 176, Id. 376, and Id. 460.

A foreign entomologist, Count Mannerheim, well known as an acute and diligent Coleopterist, and the author of a great number of Memoirs, most of them descriptive, published in the 'Bulletin de la Société Impériale des Naturalistes de Moscou,' died at Stockholm, on the 9th of October, 1854.

The interest as well as the attendance of our meetings has been well maintained, and many of the exhibitions and notices have led to animated discussions. Three subjects appear to be peculiarly worthy of remark: 1st, the production of silk by other insects than the well-known and invaluable Bombyx Mori; 2nd, the materials of which wasps construct their nests; and 3rdly, the communication of motion to seeds by the movements of an inclosed insect. With your permission I will say a few words on each of these.

One of the silk insects, and that which has obtained the most attention, is the Bombyx Cynthia, a native of Assam, the larvæ of which feed on the castor-oil plant (*Ricinus Palma-Christi*): it was first introduced to our notice by Mr. Spence, who read some extracts from the 'Journal of the Society of Arts,' from which it appeared that this insect was reared most extensively over a large part of Hindustan, more particularly in the districts of Dinagpur and Rangpur,—that the silk was of incredible durability, and the insect so prolific that twelve broods were reared in one year. Dr. Helfer, who transmitted the information, adds, that he estimates that no less than 150 of the Indian Bombyces form cocoons more or less adapted for manufactures. At the June meeting Mr. Westwood exhibited some of the cocoons of this insect, forwarded from Malta by Dr. Templeton, together with an inquiry whether any method was known by which the silk could be unwound; and finally, at the October meeting, our Secretary read extracts from the 'Journal of the Society of Arts,' showing that the insect had been introduced with complete success into Malta and

Italy; and Mr. Westwood added that Professor Solly had made several experiments on the cocoons brought to England, and he believed a method of unwinding the silk from the cocoons had been discovered. At Vienna a number of experiments have been made with a view to introduce the silk of Saturnia pavonia-media as an article of commerce: the few particulars yet known were introduced to your notice by myself at a late meeting of the Society. From the information I have received on this subject it seems highly probable that these experiments will lead to the most important results, since the insect not only produces the raw material, but completes the fabric without the intervention of machinery. Nevertheless on these important topics a few commercial questions necessarily obtrude themselves: for instance, is there any difficulty in obtaining an ample supply of silk from the well-known silkworm? will the new species, or either of them, bear a greater degree of cold than the silkworm of China? can the silk be produced cheaper? is it more durable—of finer quality or colour? The man of science will be interested in all such discoveries as those to which I have alluded, but before we can engage the merchant in the cause we must point out to him its pecuniary advantages.

The materials used by wasps for the paper-like substance of which their nests are composed was brought under consideration, by the late Mr. Ingpen, at the July and August meetings: having detected fungoid matter in the nest of an exotic wasp, he thought it probable that those of our native species were not altogether composed of wood, as is generally believed; and, in corroboration of this idea, that lamented entomologist exhibited a piece of decayed wood from one of the cedars in the Botanic Garden at Chelsea, in which was a layer of fungus, and wasps were observed to frequent this, apparently for the purpose of obtaining building materials: in support of such a supposition I took occasion to observe to you that a mass of anomalous matter, cut from a wooden rail, had been found, on a microscopic examination, to be entirely fungoid. In connexion with this subject were two other statements of much interest: the first from the late lamented Mr. Wing, that he had seen wasps collecting the tomentum of a mullein; the other from Mr. Watkeys, that he had seen wasps at work on the stems of dead and dried nettles. I observed that all other speakers on the subject strove to establish the fact that wasps had been seen in the act of detriting the surface of palings, &c., a fact that I previously conceived to be so notorious as not to need this reiteration. Reverting, then, to the question raised by Mr. Ingpen, "What is the material actually used by wasps?" I am able with confidence to announce the following results:—The nest of Vespa Norvegica is not uniform in its composition: in one part it consists of very long, flat, cotton-like fibres, very much resembling, if not actually identical with, the long silky hairs attached to the seed of the cotton-grass (*Eriophorum*), intermixed with a very few fibres of woody tissue, and in a number of examinations a single fibre only was detected of coniferous wood: in another part of the same nest the cottony fibres of the supposed Eriophorum were intermixed with particles of the cuticle and large cellular tissue of what appears to be a species of Juncus. The nest of Vespa germanica is almost entirely composed of loose bundles of flexible cotton-like fibre, the material and structure being very similar to that in the nest of Norvegica, but other fibres are intermixed, precisely similar to those which compose the epidermis in the thistle tribe. The disposition of the fibres is similar in the material used by both these species: they look as if felted together. The exterior of the nest of Vespa vulgaris is composed of the vascular tissue of coniferous and other woods: spiral cribriform and entire vessels occur in abundance, with fragments of divergent layers frequently adhering to them; the entire substance is composed of these materials, with a considerable admixture of transparent cementing matter having just the appearance of irregular films of isinglass: the interior of the nest is composed of the same materials more highly comminuted, and with a larger admixture of the cementing matter. When I tell you that the nests and names were obligingly supplied by Mr. Smith, and that the microscopic investigation was conducted by Mr. Bowerbank, unrivalled in his knowledge of intimate structure, you will see that the *facts* elicited must be received as final: the *conclusions* drawn from them may be various; my own conviction is that each species, or perhaps even each colony, may select the most accessible substance suited to its purpose: thus the wasp of the barren moor may find suitable material at hand in the gracefully flowing tresses of the cotton-grass, while our London wasp may obtain from every post and rail all that is required: again, the exotic species instanced by Mr. Ingpen may have built its dwelling in a region of Fungi, and have found in the dried fibres of these generally fugitive vegetables a fitting material for its purpose: again, the nest of the tree wasps, exposed to wind and rain, may need a different material from that used by the ground wasp, whose nest is always sheltered from the storm. Simple, and I trust satisfactory, as this explanation may appear, it is one which must fill our minds with the most profound admiration; for it exhibits a being which we heretofore supposed to be acting under the influence of a blind but unerring instinct, like a machine or automaton worked by steam or by clock-work; it exhibits that being in a new and unlooked-for character,—the character of a calmly reasoning architect, who, in the first instance, selects his materials according to the site of his building, and who, secondly, not finding at hand the material best suited to his purpose, substitutes another totally and widely different as far as all external appearances are concerned, still perfectly adapted to his requirings. It is held to be a triumph of intellect when a man thus substitutes one article for another and incurs no loss by the change, but here we have a much-despised insect constantly doing this, always reasoning on, and shaping its course by adventitious circumstances. Is it not a fresh proof of the perfect wisdom of that Power which has created and which upholds the Universe!

The third subject, which has attracted attention at some of our meetings, I am compelled to strip of its miraculous character: I allude to the so-called "jumping" of seeds. The seeds to which our friend Mr. Westwood alluded, in the interesting communication made at the meeting of October 2nd, were the cocci or compartments of the well-known tricoccous fruit of a Euphorbiaceous plant, the botanical name of which, if indeed such name exist, is not ascertained; but the general character of such vegetable productions is familiar to many of you: they may be said to possess three surfaces; one highly convex, almost hemispherical; the two others flatter, but still slightly convex: in the species under consideration these cocci were about a third of an inch in length, and each of them contained an obese maggot, believed by Mr. Westwood and Mr. Stainton to be Lepidopterous, a conclusion which I am quite willing to believe correct, since I have long since observed the Coleopterous larvæ confine their ravages to farinaceous seeds, while Lepidopterous larvæ are not unfrequently found devouring the interior of oleaginous seeds, of which fact I might cite many apposite examples: this larva is contained within the coccus. Many of the cocci moved from the first; others were quiescent at first, and could only be induced to move by the application of warmth; many did not move at all: the motion was slight and of a rocking character, such as a man in a cask, a child in a cradle, or people in a boat, would produce; and which, repeated, sometimes amounted to a slow progressive movement, so that in some instances the cocci were eventually worked off the table by the movements of the contained larvæ: the motion was of course more observable when the coccus rested on its more convex than on its less convex surface; but it did not even then entirely cease. Dr. Hooker, who has most obligingly supplied me with this information, adds, "Many people saw this motion day after day; we had them exhibited at parties, and I think if you reflect you will agree with me that it is nothing more than a repetition of the old trick of the mouse in the egg, and"—here, gentlemen, I wish you to notice particularly Dr. Hooker's concluding words—"besides this rocking I never saw any other motion whatever." The accounts previously published in Réaumur and Kirby and Spence, of cocoons or pupæ possessing locomotive powers, and to which allusion was made at two successive meetings, do not appear to meet the case: they belong to quite another class of phenomena, and must still rest on their respective authorities, which I do not for a moment question, but which are totally independent of and totally unsupported by these more recent observations.

The year has been remarkable not only for the number but for the extent and the intrinsic value of its entomological publications. Of our own 'Transactions,'* of which four unusually valuable parts have been published, I refrain from saying anything, since every member must be thoroughly acquainted with them: of the other serials I say but a few words.

In the 'Annals and Magazine of Natural History'† for August is a description by Mr. Wollaston of an entirely new curculionideous insect, which that gentleman has called Pentarthrum Huttoni: it is one of the Cossonides of Schönherr, yet is so singularly constructed as respects the funiculus of the antennæ, which is five-jointed, that it may be regarded as connecting the Cossonides with the Rhyncophorides, in which a similar number of joints occasionally obtains: four specimens of this curious insect were extracted from the hard and undecayed wood of a cherry tree at Alphington, near Exeter, in November, 1853.

Mr. Stainton has commenced, in the 'Zoologist,'‡ an essay on Entomological Botany, more especially with reference to the plants frequented by the Tineina. This work promises to be very useful: it is on the plan of Martyn's 'Aurelian's Vade-Mecum,'* published at Exeter in 1785, and a work which the late Mr. Stephens highly prized: it is an almost forgotten but invaluable witness to "the light of other days." Mr. Harding, the President of the Society of British Entomologists, has taken up the same subject, and has made various observations on the pupa-cases and food-plants of Micro-Lepidoptera: these will be found in various numbers of the 'Zoologist.'

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* 'Transactions of the Entomological Society of London.' New Series. Vol. ii. Part 7. 1854. Price 3*s*. 6*d*.
Id. 1854. Vol. ii. Part 8. Price 4*s*.
Id. 1854. Vol. iii. Part 1. Price 3*s*. 6*d*.
Id. 1854. Vol. iii. Part 2. Price 3*s*. 6*d*.

† 'The Annals and Magazine of Natural History.' London: Taylor & Francis. 1854. Nos. 73—84. 2*s*. 6*d*. each.

‡ 'The Zoologist: a Popular Monthly Magazine of Natural History, and Journal for recording Facts and Anecdotes relating to Quadrupeds, Birds, Reptiles, Fishes, Annelides, Insects, Worms, Zoophytes, their Habits, Food, Retreats, Occasional Appearance, Migrations, Nests and Young.' London: Van Voorst. 1854. Nos. 135—146. Price 1*s*. each.

In the January number of the 'Zoologist' I had the pleasure of recording the capture of Zygæna Minos in Ireland, by Mr. Milner, of Nunappleton, and in the September number are some valuable remarks on this interesting insect by Mr. A. G. More, who informs us that it occurs all around Castle Taylor, Ardrahan, and that he has traced it within the limits of the county Galway as far as Garryland: it is more particularly abundant towards the sea: it appears about the first week in June, and is in perfection until the middle of the month; it then swarms on many parts of the rock-strewn pasture so characteristic of the mountain limestone district of the West of Ireland.

In the December number of the 'Zoologist' is a minute description, by that indefatigable collector Mr. Bold, of a brachelytrous insect, which he has called Lathrobium carinatum: the very careful description has enabled our excellent curator, with little hesitation, to identify the species with the Lathrobium dentatum of Kellner, described at page 414 of the 'Entomologische Zeitung' for 1844; but even under the altered name the insect is new to this country, and an interesting addition to our insect Fauna: two specimens only have come under Mr. Bold's notice; one, a male, taken by himself under gravel by the river Irthing, in Cumberland; the other, a female, in a similar locality, on the Devil's Water, Northumberland, by Mr. Wailes.

In the same number of the 'Zoologist' is a notice of the occurrence of Dytiscus lapponicus in the Isle of Mull, together with a copy of Gyllenhall's description. The Rev. Hamlet Clark, who made this interesting discovery, says that he took four specimens on four different occasions, in a very deep lake in the Isle of Mull, in September, 1854. Mr. H. Clark expresses his belief that the Dytiscus septentrionis, distinguished by the smooth elytra of the female, will be eventually referred to lapponicus: it seems to be now pretty clearly established that the smoothness or sulcation of the elytra in Dytisci is neither a certain character of species nor absolutely diagnostic of sex.

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* 'The Aurelian's Vade-Mecum; containing an English Alphabetical and Linnean Systematical Catalogue of Plants affording nourishment to Butterflies, &c.' By M. Martyn. Exeter: 1785. 8vo.

A great number of other notices occur in the 'Zoologist,' recording the capture of novelties or rarities, but I will not repeat them here, because that Journal is always on your table as soon as published; and, moreover, I believe I may congratulate myself on having each individual member as a subscriber.

In the 'Transactions of the Linnean Society'* are two beautifully illustrated papers by that distinguished entomologist whom, since I began to address you, you have elected as your future President. The first of these is intituled "On the Genus Myrmica and other indigenous Ants;" the second, "Remarks relative to the Affinities and Analogies of Natural Objects, more particularly of Hypocephalus, a Genus of Coleoptera." In the paper on British Ants Mr. Curtis enumerates five genera and sixteen species, two of which, Myrmica perelegans and M. denticornis, are presumed to be new to science. The paper on Hypocephalus has a double object; the first, used as a stepping-stone to the second, is to show that Hypocephalus belongs to the great Coleopterous section of Lamellicorns; the second, in the author's own words, is "to assist in fixing our systems on some firm basis, generally understood and universally to be adopted, so that we may no longer be tossed to and fro as we are at present." I am sure that every entomologist will give his meed of praise to so high an object as these words disclose, but I do not feel quite so confident that what I have called the stepping-stone to this philosophical eminence will be so generally availed of: I do not feel quite sure that entomologists will, with the same unanimity, agree to place Hypocephalus among the Lamellicorns, and I should scarcely be enacting my present part with perfect faithfulness were I not to say that I entertain a different view; but it must be distinctly understood that I dissent simply in my individual capacity as an entomologist, entirely disclaiming any importance for my dissent on account of the office which I have just relinquished; and I feel confident that Mr. Curtis will at once pardon what is simply an avowal of difference of opinion.

Mr. Stainton has published the first number of a new serial called the

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* 'Transactions of the Linnean Society.' Vol. xxi. Part 3. 4to. Plates. London: Longman. 1854. Price 12*s*.

'Entomologist's Annual:'* it contains much useful information, collecting in a concise manner the published records of novelties added to our lists of Lepidoptera, Hymenoptera and Coleoptera: these three orders are worked out respectively by Mr. Stainton, Mr. Smith and Mr. Janson. Mr. Stainton has likewise issued a second edition of the 'Entomologist's Companion,'† and has completed the Museum Catalogue of the British Lepidoptera ‡ interrupted by the death of the lamented James Francis Stephens.

Mr. Walker, with a laborious assiduity which I have never known surpassed, has produced four Parts of the Museum Catalogue.§ Some idea of these important works may be gained by the following summary. The first list is intended to include short descriptions of all the species, genera and families of Lepidoptera: the first part contains descriptions of 508 species, of which 114 are Cydimonii and 394 Zygænides; in the Cydimonii there are 21 new species, and in the Zygænides 175: the second part contains descriptions of 575 species of Lithosiidæ, of which 276 are new: the total number of species is 1083, of which 472 are new. The second list includes descriptions of the species of Diptera not characterized in the first series of the same work or in the 'Insecta Saundersiana:' the first part contains 379 species of Stratiomydæ, of which 26 are new; 36 of Xylophagidæ, of which 1 is new; and 830 of Tabanidæ, of which 31 are new: the second part contains 74 species of Acroceridæ, and 470 of Asilidæ, of which 8 are new: the total number of species is 1789, of which 66 are new.

Mr. Andrew Murray, of Conland, has published an admirable

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* 'The Entomologist's Annual for 1855, comprising Notices of the New British Insects detected in 1854.' Lepidoptera, by the Editor, H. T. Stainton: Hymenoptera, by Frederick Smith: Coleoptera, by E. W. Janson. Col. Plates. London: Van Voorst. 1855. Price 2*s*. 6*d*.

† 'The Entomologist's Companion.' Second Edition. By H. T. Stainton. London: Van Voorst. 1854. Price 3*s*.

‡ 'List of the Specimens of British Animals in the Collection of the British Museum.' Part 16. Lepidoptera completed. London: 1854. Price 3*s*.

§ 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum.' Part 1. Lepidoptera: Heterocera. London: 1854. Price 4*s*.

Id. Part 2. Lepidoptera: Heterocera—continued. 1854. Price 3*s*. 6*d*.

'List of the Specimens of Dipterous Insects in the Collection of the British Museum.' Part 5, Supplement 1. London: 1855. Price 4*s*. 6*d*.

Id. Part 5, Supplement 2. 1855. Price 3*s*.

'Catalogue of the Coleoptera of Scotland:'[*] this little work not only equals but far surpasses any Catalogue of Coleoptera ever published in England: it exhibits an acquaintance with the best continental authorities and great power in adjudicating the true value to supposed species. It is a source of the most unmixed pleasure to me to see Scotland, the finest field for the naturalist in the Queen's dominions, thus understood, appreciated and illustrated by one of her own sons.

Our indefatigable friend Mr. Westwood has just published a re-issue of his work on the Butterflies of Britain,[†] and also a Supplement to Wood's 'Index Entomologicus,'[‡] which "contains five plates now first engraved, exhibiting 180 coloured figures of British moths and butterflies not included in the former edition of the 'Index Entomologicus,' with synonyms and localities, also a systematic list of the whole of the species, in order to show their distribution into families and the position of the supplemental species, and of those whose generic classification has been modified."

Messrs. Baikie, Barron and Adams have published a work intituled 'A Manual of Natural History for the Use of Travellers.'[§] This volume contains 750 pages, 150 of which are occupied by Entomology.

I now arrive at the Rev. J. F. Dawson's Monograph of the Carnivorous Ground-beetles,[||] a work that bears internal evidence of invincible assiduity and a profound knowledge of the subject. This volume is less remarkable for the amount of new matter it contains than for the mass of old and worthless matter which it sweeps away. Nothing was ever more extraordinary than the wholesale destruction of names which Mr. Dawson has achieved. Those entomologists who had reserved long gaps in their cabinets, under the fond idea that these were to be eventually filled, now find that half the names for which this extensive accommodation was prepared actually signify nothing, while a large portion of the remaining moiety is comprised of names erroneously applied. I do not lay this enormous mass of error at the doors of any one or two or three individuals who may have been more actively engaged than the rest in literary labours in Entomology: we have all more or less contributed to this confusion by fostering a morbid desire for novelty, and a consequent tendency to exalt unreasonably the importance of accidental and inconstant differences. The numerical diminution of names in Mr. Dawson's work extends to the genera as well as to species, and no less than 31 genera, which had become familiar as household words, have merged in others and disappear: these are — Lamprias merged in Lebia; Helobia and Pelophila in Nebria: Blethisa in Elaphrus; Trimorphus in Badister; Platynus and Agonum in Anchomenus; Pœcilus, Abax, Platysma, Adelosia, Steropus, Omaseus, Argutor and Platyderus in Pterostichus; Celia, Acrodon, Percosia, Bradytus and Curtonotus in Amara; Ophonus in Harpalus; Epaphius in Trechus; Cillenum, Tachys, Ocys, Philocthus, Peryphus, Notaphus, Leja, Lopha and Tachypus in Bembidium. These are sweeping alterations, but I think there is no doubt they will be regarded as wholesome ones, for this department of our science had really become overloaded with names that signify nothing. The actual additions to our British Geodephaga make slight compensation for the large deductions: these are twenty-one in number, and are highly interesting in character:—1. Dyschirius obscurus of Gyllenhall, found by Mr. Haliday on the sandy shores of Lough Neagh. 2. Dyschirius impunctipennis of Dawson, found by the author by the side of a stream on the Smallmouth sands, near Weymouth. 3. Dyschirius jejunus of Dawson, found by Mr. Bold, of Newcastle, on a sandy bank of the river Irthing, in Cumberland, a little above Lanercost Abbey. 4. Anchomenus atratus of Dufstschmidt, first captured in Hampshire, afterwards in Cornwall and other western counties of England, and very abundantly near Bristol. 5. Amara curta of Dejean, not uncommon on the sand-hills at Deal, in company with lucida and tibialis, but readily distinguishable from either by its broader form. 6. Amara ingenua of Duftschmidt, a well-known European species, but unique as British, the only known example having been captured in Scotland. 7. Harpalus cordatus of Duftschmidt, also well known on the Continent and also unique as British; the only example was captured by the author near Deal, at the roots of tall wing-grass which grows on the sand-hills. 8. Harpalus rupicola of Sturm, found in chalky districts, Dorking, Basingstoke and the Isle of Wight. 9. Harpalus sulphuripes of Germar; a single example taken near Bristol. 10. Harpalus Wollastoni, of which four or five specimens were captured by Mr. Wollaston, in May, 1852, at Slapton Ley, Devonshire. 11. Harpalus melancholicus of Dejean, captured by Mr. Wollaston near Swansea. 12. Stenolophus elegans of Dejean, found by the Rev. Hamlet Clark between Sheerness and Queensborough, in the Isle of Sheppey. 13. Stenolophus derelictus of Dawson, found near London by Mr. F. Smith. 14. Stenolophus exiguus of Dejean, discovered in England by Mr. Samuel Stevens, who captured a few specimens on Bury Hill, near Arundel: a single specimen was taken by Mr. Wollaston in the Isle of Wight, and Mr. Dawson himself subsequently took a series of the insect on the sands at Pegwell Bay, near Ramsgate, in February, 1849. 15. Bradycellus cognatus of Gyllenhall, a mountain species, which appears to occur only on the high moors of Wales, Yorkshire and Scotland. 16. Bembidium fluviatile of Dejean, taken by Mr. Hadfield, of Newark, on the banks of the Trent at Kelham. 17. Bembidium stomoides of Dejean, captured by Mr. Bold, of Newcastle, on a sandy bank by the Irthing. 18. Bembidium obliquum of Sturm, found also by Mr. Bold, at Gosforth, in Cumberland. 19. Bembidium Schuppelii of Dejean, found by Messrs. Bold, Murray and Wailes, on the banks of the Irthing. 20. Bembidium Doris of Panzer, an insect of rare occurrence in the salt-marshes of England. And lastly—21. Bembidium callosum of Kuster, found by Mr. Steuart on Woking Common. I believe the whole of these twenty-one insects to be perfectly distinct as species, certainly all of them are new as British. It would have been a labour of love with me to have abridged the minutely accurate characters which Mr. Dawson has drawn up for each of them, but I think that every British Coleopterist is bound to possess himself of this valuable volume.

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[*] 'Catalogue of the Coleoptera of Scotland.' By Andrew Murray, of Conland, W. S. Blackwood: Edinburgh and London. 1853.

[†] 'The Butterflies of Great Britain, with their Transformations delineated and described.' By J. O. Westwood, Esq., F.L.S., &c. Col. Plates. London: Orr. 1855. Price 15*s.*

[‡] 'A New Supplement to Wood's Index Entomologicus, or a complete Illustrated Catalogue of the Lepidopterous Insects of Great Britain.' By J. O. Westwood, Esq., F.L.S., late President of the Entomological Society, &c. Col. Plates. London: Willis. 1854. Price 12*s.* 6*d.*

[§] 'A Manual of Natural History for the Use of Travellers, being a Description of the Families of the Animal and Vegetable Kingdom.' By Arthur Adams, William Balfour Baikie and Charles Barron. London: Van Voorst. 1854. Price 12*s.*

[||] 'Geodephaga Britannica. A Monograph of the Carnivorous Ground-beetles indigenous to the British Isles.' By John Frederic Dawson, LL.B. Col. Plates. London: Van Voorst. 1854. Price 12*s.*

In next calling your attention to Mr. Stainton's work on the British Tineadæ,* it seems necessary to glance at the previous closet-history of these minims of their tribe: this closet-history commences in 1829 with the publication of the fourth Part of Haworth's 'Lepidoptera Britannica,' a monograph the most complete, the most learned, the most useful, ever published on the Entomology of Britain, and one which will long remain an invaluable treasure to the Lepidopterist. The sterling good qualities of Haworth are, first, that he described from Nature, and, secondly, that he described well: he says, "My specific and detailed descriptions of every species and variety are entirely new-wrought, and from British specimens, except in a few instances, where I either had no British specimen, or where they were not very good, in which cases only I have extracted the description of Linneus, Fabricius or Villars, and in no instance without a proper acknowledgment." That Haworth, working almost alone, should have fallen into some errors is not only excusable, but must be regarded as a necessary consequence of this comparative isolation: thus it need not be concealed that in several instances he multiplied species unnecessarily, while in others he reduced Nature's species to the rank of varieties; but these last he distinguished by the significant memorandum "Fortè propria species." Of the Tineadæ, the family to which my observations are now exclusively directed, Haworth described 286, and from that period the study of the Micro-Lepidoptera appears to have received an impetus which culminated in the appearance of Mr. Stainton's volume: the great labourers in this fruitful vineyard to whose names I would particularly call your attention are Mr. Stone, Mr. Bentley, Mr. Chant, Mr. Stephens, Mr. Edwin Shepherd, Mr. Bedell, Mr. Douglas, Mr. Samuel Stevens, Mr. Doubleday and Mr. Weir; and more recently Mr. Wing, Mr. Allis, Mr. Wilkinson, Mr. Boyd, and many others, have laboured assiduously in the field: the collections of Stone, Bentley and Shepherd have stood out conspicuously and prominently from the rest: that of Stone was, for its day, incomparably the finest, but merged in that of Bentley, and eventually in that of Shepherd, which I presume now stands as a whole entirely without a rival, although perhaps equalled or surpassed in all groups except the Tineadæ by that of my worthy friend Doubleday: still, although the labourers have been so many and so successful, two of them appear to me to call for individual notice, and these are the late James Francis Stephens and William Bentley, both of them distinguished for the extreme liberality, candour and pains-taking with which they opened their collections, compared specimens, explained differences, and unlocked and made patent without reserve the arcana of the science; and to the memory of Mr. Stephens a still greater debt of gratitude is due, for the free use he allowed all students to make of his magnificent library of entomological works. Mr. Stainton is now in the possession of this library, and, with such an accession to his own previously extensive collection of authors on Lepidoptera, possessed of an energy which no obstacle can resist, an assiduity which no amount of labour can weary, and turning his attention almost exclusively to these minims, it is not extraordinary that he should have produced, as he has done, a second most useful monograph on a subject already ably treated. It contains really elaborate descriptions of 591 species, of which 272 are not given as species by any other British author. I say advisedly "as species," because I am well aware that "as varieties" some few of them are noticed by the illustrious Haworth, in whose footsteps Mr. Stainton has closely followed, by carefully describing every species, as he himself assures us, from actual specimens. It would far exceed the limits, and indeed the object, of an evanescent summary like this, were I to give even the names, authorities and localities of the new species, as I have done in the instance of Mr. Dawson's Geodephaga: the most superficial mention of 272 species would occupy an hour at least, and I will not venture such a tax on your patience. All that I can do is cordially to recommend Mr. Stainton's volume, and to hope that all may profit by it equally with myself. The copious and almost crowded illustrations by the pencil of our deeply-lamented assistant-secretary are worthy of attentive study.

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* 'Insecta Britannica.' Lepidoptera: Tineina. By H. T. Stainton. 8vo. Plates. London: Lovell Reeve. 1854. Price 25*s*.

But the most important and valuable work I have to notice, and the one which as a work of science will confer most honour on this country, is the 'Insecta Maderensia' of Mr. Wollaston.* This work is distinguished throughout by persevering industry, profound knowledge and philosophical spirit. Nothing can exceed the industry with which the author has pursued his object, a fact that will be sufficiently evident when I state that he has described 213 genera and 482 species of Madeiran Coleoptera, out of which 41 of the genera and 270 of the species are now characterised for the first time, and are therefore absolutely new to science. With regard to the solid entomological knowledge possessed, and in every page made manifest without display, there can be but one opinion, for not a single species or genus is mentioned unaccompanied by the evidence of a perfect knowledge of its antecedent history: this, I am aware, is very high praise, but it is praise which no one can say is unmerited. The philosophical spirit is manifested equally in the masterly characters given of every genus and species, and in the explanatory remarks which invariably follow each description; and I must not omit to add that these descriptions and remarks are invaluable to the British Coleopterist, because a large proportion of the genera described and cited for comparison are familiar to us as indigenous to Britain. Into such descriptions and such remarks it is impossible for me to enter here, but I cannot forego the opportunity of citing some general observations which appear to me of more than ordinary value. The statistical conclusions forced on Mr. Wollaston's attention by his analysis of the Madeiran Coleoptera are as interesting as unaccountable. In this mild and sunny isle there is not a single representative of those lovers of warmth and sun, the Cicindelidæ and Buprestidæ; in the deep mossy ravines there is no representative of the moss-loving Pselaphidæ; in this land of flowers the flower-feeding lamellicorns and the Elateridæ have each but a single and abnormal representative: descending to genera, the cosmopolitan Carabus, Nebria, Silpha, Necrophorus, Cetonia, Telephorus, Tentyria, Pimelia, Acis, Asida and Otiorynchus are entirely unrepresented. The numerical proportion of the thirteen great groups of Coleoptera present in Madeira is as follows:—

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* 'Insecta Maderensia; being an Account of the Insects of the Islands of the Madeiran Group.' By T. Vernon Wollaston, M.A., F.L.S. 4to. Col. Plates. London: Van Voorst. 1854. Price £2 2*s*.

Rhyncophora	104
Necrophaga	80
Brachelytra	74
Geodephaga	63
Serricornes	35
Atrachelia	29
Cordylocerata	22
Phytophyga	21
Pseudotrimera	17
Philhydrida	13
Trachelia	11
Hydradephaga	7
Longicorns	6
	482

The most remarkable feature in this list is not the preponderance of Curculionidæ, Necrophaga, Staphylinidæ and Carabidæ, all of which one would suppose abundant, but the extremely small number of water-beetles and longicorns: 4 Colymbetes, 2 Hydropori, and the familiar Gyrinus natator, are all the Hydradephaga. Mr. Wollaston thinks that this paucity is not difficult to understand, "the rapid nature of the rivers, which are liable to sudden inundations from the mountains, and to deposit their contents in positions distant from their banks, or to pour in ceaseless torrents over the perpendicular faces of the rocks," being peculiarly unfavorable to the preservation of insect life: this is a reasonable solution, but how shall we account for the absence of Cerambycidæ from this island of woods? and how shall we account for the great scarcity of all flower-loving Coleoptera, except on the supposition that their office of pollen-bearers is performed by the hosts of Hymenoptera and Diptera. Mr. Wollaston's remarks on the effects of isolation on species are worthy of deep study and attention; they will be found appended to the descriptions of Scarites abbreviatus, Calathus complanatus, Harpalus vividus, and the Ptini: after alluding to the two sections of the latter, the author proceeds to say that "the representatives of both are subject to very great variation in size and colour, and, since even the sexes themselves often display considerable incongruity, *inter se*, it is not surprising that the boundaries between some of the species which are nearly allied should be difficult to trace out. Such being the fact, it is impossible to overrate the importance of studying them *in situ*, so as to be enabled not only to connect the numerous aberrations, but even at times, perhaps, in a certain measure, to account for them; since it is by this process of inquiry that we are more likely to arrive at truth, than by the collation of treble the amount of individuals, at a distance, when anything like local phenomena in connexion with them must be entirely overlooked. So completely, indeed, are some of the Madeiran Ptini affected by isolation, and by an exposure to a perpetually stormy atmosphere, that they do not attain half the bulk on many of the adjacent rocks that they do in the more sheltered districts of the central mass; and so marvellously is this verified in a particular instance, that I have but little doubt that five or six species, so called, might have been recorded, had only a few stray specimens been brought home for identification, without any regard having been paid to the respective circumstances under which they were found. Judging from many hundred examples which I have submitted to a close comparison, the most constant of their characteristics would appear to be outline and sculpture, whilst size and colour are apparently the least to be depended on, and hence trifling differences may be often of specific indication in the former case, where in the latter much larger ones are worthless." Again, the observations on Tarphius, one of the Colydidæ, a family of Necrophaga, are replete with interest: prior to the publication of Mr. Wollaston's work a single species was known, and this of the greatest rarity; it was taken in Sicily by the late lamented Coleopterist Mr. Melly. Mr. Wollaston has added no less than fifteen Madeiran species, all of which appear to be abundantly distinct. "Of the influence and economy *in situ* of such an assemblage it is not easy to speculate; suffice it therefore to remark that the enormous numbers in which they exist, when compared with the limits within which they are confined, would seem to point to some especial end which they may be presumed to fulfil amongst the insect population of those remote upland districts. Meanwhile it is far from improbable that, like many of the Nitidulidæ and the xylophagous groups, they may assist materially in the decomposition of the superfluous masses of loose rolling timber with which the damp ravines and dense mountain slopes of Madeira everywhere abound. To such localities it is that they are exclusively assigned, occurring in the greatest profusion in those spots which are the least accessible, and where consequently the primæval timber is, except by the hand of man, most untouched. In their habits the Tarphii are strictly nocturnal, adhering to the under sides of moist decaying logs of wood, felled timber, and even stones during the day, and being only active apparently by night. From 2000 to 5000 feet above the sea may be said to include their range; nevertheless they are more peculiarly abundant from 3000 to 4000 feet, and it is perhaps towards the upper edge of these bounds that they find their maximum. * * Considering the inaccessible nature of their favorite localities it is far from improbable that many species will remain for ever undiscovered, a possibility which is not lessened by the fact either of the remarkable manner in which they are able to counterfeit death, and so elude observation, or of the near resemblance of the dull rusty colouring of their uneven and inanimate-looking surfaces to the stones, lichen and portions of rolling wood to which in the day time they remain firmly fixed." We are all aware of the creaking sound emitted by Aromia moschata and many other longicorns; we all know that this noise is accompanied by a movement of the great central articulation of the body, that of the prothorax with the mesothorax, and we all attribute the creaking to the friction of some part of the prothorax on some part of the mesothorax. Mr. Wollaston is not content with this theory, although self-evident, but has been at great pains to discover the exact truth, and has detected and described the mechanical apparatus by which the sound is produced, and tested his conclusions by producing similar sounds at pleasure and with Nature's own instruments: he finds in the genera Deucalion, Parmena and Dorcadion, a narrow space in the shape of an isosceles triangle (the apex being turned towards the scutellum), which occupies nearly the entire length of the mesonotum, and which, from its brightness, appears at first sight perfectly smooth, but when viewed under a microscope is seen to be covered with very fine transverse parallel and acute ridges, closely set together after the manner of a file; and it is by depressing and raising the prothorax, an act which alternately exposes and recovers the upper region of the extremely cylindrical mesothorax, that its under side is brought to play against this inner dorsal file, and by this process the strictulation is effected. "In order to convince myself," says Mr. Wollaston, "of the reality of this, I have relaxed many specimens of the genera in question, and have caused the sound artificially with the greatest ease." Although these Madeiran commentaries and quotations have already exceeded a reasonable length, I trust I shall be pardoned for making still another extract, in which the effects on insect life of a calm at sea are admirably set forth: the author is on the Northern Deserta or Ileo Chao, and is speaking of the Ptinus albopictus. "So perpetually," says he, "is that remote table rock played over by the breezes of the ocean, that even a temporary respite is almost an anomaly within its desolate area; and if such a crisis should chance at times to arrive, it is curious to note how every species of life, taking advantage of Nature's repose, comes forth to enjoy the calm. I shall not soon forget the pleasure I derived on the 5th of June, 1850, from the sudden effects of a lull, after an exposure to the blasts during several successive days, on this iron-bound isle, — how all things seemed to participate in the change, and literally to rejoice. Even the vegetation, as though released from its suffering, began to look up; whilst insects, unthought of before, filled the atmosphere as it were on the instant, as though experience had taught them that such tranquillity was but of short duration, and that if it were to be enjoyed at all not a moment was to be lost. It was on that particular afternoon that I first appreciated the prodigious numbers of the lilliputian Ptinus under consideration, which, though apparently scarce during the more boisterous period, now emerged by thousands on every side. From whence they came it would have been difficult to conjecture: * * they were in greater or less profusion everywhere, until, as evening approached and the winds began to return, as quickly as they came every one of them vanished."

With this sketch of the entomological labours of my friends—contrasting, so unfavorably to myself, with my own inactivity—I conclude this too lengthened Address: faint and imperfect as the sketch confessedly is, it still must amply suffice to show that Entomology with us is not on the wane: your exertions were never greater; they were never crowned with more triumphant success: this is a subject on which I may heartily and truthfully congratulate you, and as heartily and as truthfully may I congratulate you on the state of the Society, on the solidity of our present position, and on the brightness of our future prospects: we have published largely, and met with a most encouraging sale; the number of our members has increased; our exchequer is full; our debts are paid. Heartily wishing that this prosperity may continue, that every success may attend our united and harmonious labours on behalf both of the Science and the Society, I now retire from that important office with which you have entrusted me, deeply feeling that no thanks of mine can make you an adequate return for the kindness with which you have invariably received me, and carrying with me into obscurity the most pleasurable recollections of my brief tenure of authority.

Black Hare shot at Brome.—During a battue at Brome, near Eye, the seat of Sir Edward Clarence Kerrison, Bart., in the early part of January, a hare perfectly black was shot in one of the plantations, and has been preserved by the honorable baronet. Seven years ago a similar specimen was shot in the same place, but none have been seen since.—*C. R. Bree; Stricklands, Stowmarket, February* 8, 1855.

On the three Species of Divers or Loons.—Of the first, the redthroated, it is almost needless to repeat that it is a common species, so far as relates to the "speckled loon," on most parts of our coast, though occurring, from its non-gregarious habits, in but small numbers. It may here be well to notice that in one instance I fell in with what appeared to be a small family party of the blackthroated diver. These five or six birds frequented for some time a small bay near Bembridge, and seemed most studious to keep up this family connection, until one day I succeeded in effectually dispersing them by a lucky cartridge which left two sprawling on the surface (of which however, by some strange inherent vitality, one contrived to escape), and after that I saw no more of the association. One of them was afterwards shot in my presence, and, after having passed through the ordeal of careful examination, was thrown into the water to wash away the blood, when, to the great surprise of the shooter, he swam and dived away most gallantly, not again to be so easily outwitted. The favourite food of the divers appears to be the sea-smelt or atherine, if I may judge from the result of several dissections. The next common is the great northern diver, and I may perhaps be allowed to say that its rarity, at least in the immature or winter (?) plumage, is generally overrated. With us at all events (at Bembridge) the bird was a regular winter visitant to the coast, and well known to the fishermen and "gunners." I shall not easily forget my delight when first the great northern diver fell before my gun, but I have since learned to think more of my luck in killing the bird than of its actual scarcity. There seems, too, an impression current that the divers seldom make use of their wings, but from my own experience, and I have made the genus to a certain extent a special object of study, they *do* fly quite as much as could be expected in birds of such astonishing subaqueous facilities. They were in the habit of flying in and out of Bembridge Harbour, probably for the sake of food; and I have constantly, when out sailing, seen them on the wing over-head far out of gun-shot: nay, they have many times trusted to the air, "par préférence," whilst I was endeavouring to circumvent them; and this was also the constant habit of the horned grebe when we bore down upon him. It may seem unnecessary to allude to the loon's marvellous activity in diving, called as they are after this pre-eminent faculty, still I may safely say that of many shots I have fired at them, and within twenty yards too, I scarcely ever knew one to take effect, even with a percussion gun, unless the bird had the back of its head turned to the flash; and often when rising close to the boat a sort of spring and a momentary glimpse of its curving back was all I could catch of the hunted bird. Frequently, too, has one of these stately creatures, emerging close at hand, appeared to court a shot, till the result showed one might as well have aimed at a "Will o' the wisp." Their mysterious disappearance after a tedious chase is well known, and I should feel inclined rather to side with those who ascribe it to the power they have of using their beak alone for respiration while the body is all concealed, than to the more flattering conclusion of a fatally wounded bird entangling itself in sullen despair among the sea-weed at the bottom. The blackthroated diver is also probably less uncommon than is said; and the great difficulty of obtaining specimens, together with the impossibility of distinguishing the two smaller species until brought to bag, may serve to account for this. Though perhaps seldom procured, about an equal number passed through my hands, in the Isle of Wight, as of the great northern. Two interesting questions remain for the solution of some diligent observer: the first, respecting the plumage, as to whether any numbers of adult birds do regularly visit our South coast in winter, as is supposed from the comparatively few young that are reared annually; and it is as well to remember, on this point, how very much heavier are those few which are got in perfect plumage: further observations, too, are much needed on any birds found in the intermediate state, or in whatever condition whilst approaching the adult livery. The second point wanting confirmation is whether the redthroated diver still breeds in the northern isles of Scotland. It is much to be feared that the other truly indigenous species (blackthroated) is too much persecuted by the unscrupulous avidity of private egg-collectors (who too often spare neither nest nor parents), so as in no small degree to justify the apprehension that this fine bird will soon be numbered with the wild swan, the gray lag, the crane and the bustard, among glories ornithological long since departed, to the regret of every real lover of birds. As to the great northern diver, too, there seems considerable doubt whether it does at the present day nest upon British soil; and the several unaccountable instances of its occurrence in the early summer months, as when lately in full plumage it fell to the rifle of a friend on Lough Corrib, Ireland, tend in no small degree to render the solution still more difficult, but it is presumed, for that very reason, the more interesting.—*A. G. More; Trinity College, Cambridge, January*, 1855.

Rare Birds captured near Stowmarket.—During the severe weather from the 16th of January to the 7th of February, of this year, some rare birds have been taken in this neighbourhood. I use the term "rare" of course relatively. Our position with regard to the coast makes many birds common there great rarities here. Ipswich is about twelve miles from Harwich, but the Orwell is tidal, and, in places, nearly a mile in breadth, so that it may almost be termed an arm of the sea. From Ipswich we are twelve miles, a tolerably sized canal connecting the two towns. It is this canal, I have no doubt, which brings up the birds from the sea.

Blackthroated Diver (*Colymbus arcticus*). In the beginning of February, when the snow covered the ground upwards of a foot, one of the gamekeepers of E. Bennett, Esq., of Buxhall Lodge, was coming into Stowmarket, when he saw a curious-looking bird struggling in the snow of a field by the road-side. He jumped over the fence, and gave chase: the bird could not rise, and was soon captured; it, however, made a most determined attack upon the aforesaid keeper's face, which so alarmed the man that he killed the kird. It was sent by Mr. Bennett to a bird-stuffer in this town, and upon examination I pronounced it to be a young specimen of the blackthroated diver. I subjoin a description for the sceptical. Beak as long as head, horn-colour, pointed; upper mandible longest and slightly curved at extremity; lower mandible reddish at base; both curved inwards. Plumage, upper surface:—head gray, mottled with darker colour; nape and upper surface of neck grayish brown; interscapulars, wing-coverts, back and tail-coverts grayish black, both sides of each feather being broadly margined with ash-gray, lighter on the tail-coverts; tail short, rounded, brownish black; wings — tertials and secondaries brownish black edged with ash-gray, primaries dark brown and unicolorous. Under surface:—throat and chin dusky white; upper part of neck for about two inches mottled with dusky; lower part of neck, breast and under surface of the body white; flank brown, edges broadly bordered with gray; feathers, under the wings, white; around and on each side of vent and extremities of wing and tail feathers dusky gray. Legs placed much beyond the centre of gravity; outer side dark green, inner light green; tarsus much compressed, 3½ inches long; toes four, three in front united by a membrane rounded superiorly; posterior toe slight, and attached by a membrane to the inner surface of tarsus. Dimensions: —from tip of beak to end of tail, 27 inches; from tip to tip of wings, 41½ inches; length of wing, 18½ inches; from carpal joint to end of first primary, 11 inches; from tarsal joint to end of first toe 4 inches, and inner toe 3 inches; beak from gape, 3¼ inches. It will be observed that in describing the beak I have said *slightly curved at extremity.* I am inclined to think that it is a mere abnormal variety: it is very slight, but enough to take off the pointed character of the beak. I believe this to be the first instance of the blackthroated diver being captured in this neighbourhood. A bird so northern in its habitat seldom visits even our eastern coast. I have given the description of this bird at length, as none is contained in Yarrell's excellent work: that gentleman refers his readers to the great northern diver, which he says is similar in plumage when young.

Common Scoter (*Oidemia nigra*). A specimen of this bird was taken last week in the snow, alive, at Clopton Hall, by Mr. Parker, son of Major Parker, the present high sheriff of the county. I have not seen this bird, but I am informed by the Rev. Mr. Freeman, who has seen and examined it, that it is a veritable scoter. Clopton Hall is five miles further from the sea, but one of the tributaries to our canal runs through the parish. They are trying to keep the bird alive.

Common Bittern. A specimen of this now rare bird was shot a few days ago at

Aspal, about ten miles from hence, by Mr. Freeman. It rose up in a wood, and took refuge alas! in a tree near, from which it was shot. It was very thin.

Hawfinch (*Fringilla coccothraustes*). A fine male specimen of this bird was taken about a fortnight ago, in a trap, at Old Newton, near here. It is now in my collection. —*C. R. Bree; Stricklands, Stowmarket, February* 8, 1855.

Note on the Eagle which is said to attack the Trained Falcons of Asiatic Falconers. —In the 'Zoologist' (Zool. 3648 and 4052) I drew attention to some passages in the works of various authors which appeared to throw some light on the above curious subject. I now beg to call attention to a statement bearing on the same matter, and contained in the recently published first volume of the 'Catalogue of the Birds in the Museum of the East India Company,' a volume which, it may be observed, is not limited to a simple list of specimens, but which also contains a very great amount of interesting information as to the habits of the species therein enumerated. The editor of the 'Catalogue,' under the head of Aquila Nævioides (called in India the Wokhab), quotes the following, from a paper published by Mr. Jerdon, who in his turn refers as his authority to the notes of Mr. Elliot, viz., "The wokhab is very troublesome in hawking after the sun becomes hot, mistaking the jesses for some kind of prey, and pouncing on the falcon to seize it. I have once or twice nearly lost shaheens in consequence, they flying to great distances from fear of the wokhab." The Aquila Nævioides is said to be in the habit of plundering other raptorial birds of their prey, a circumstance which, if correctly asserted, would give great probability to Mr. Elliot's theory as to the cause of these eagles attacking trained falcons.—*J. H. Gurney; Catton, Norfolk, February* 14, 1855.

The Lapland Bunting (Plectrophanes lapponica) *in Norfolk.*—I have the pleasure of recording a specimen of this rare bunting, which was netted during the last week of January, at Rostwich, near Norwich. This bird is apparently a male in winter plumage, very lively, but far from shy, and seems to thrive well in confinement.—*H. Stevenson; Norwich, February* 16, 1855.

Remarkable Variety of the Woodcock.—Mr. Cooper, of Radnor Street, St. Luke's, has favoured me with the sight of a most beautiful specimen of the woodcock, widely differing from the normal colouring of the species. Every part of the plumage was of a delicate fawn colour, just that tint which naturalists have termed *isabellinus.* Every sportsman is acquainted with the beautifully distinct markings of the woodcock in its normal state of plumage, markings so wonderfully represented in Bewick's figure, the finest bird-picture in existence: all these markings are just indicated, and no more, in Mr. Cooper's specimen; you could catch them, like reflected light, appearing in some positions and vanishing in others.—*Edward Newman; February* 19, 1855.

Occurrence of the Shag (Carbo cristatus), *the American Scaup* (Fuligula maritoides) *and the Continental Wagtail near Scarborough.*—I have an adult female shag (a rare bird with us) which was shot on the South Sands. A fine example of the American scaup was killed from the Light-house pier: it was purchased by I. Tindall, Esq., of this place, who is having it preserved. A continental wagtail was shot by a friend of mine, Mr. H. Jackson, an intelligent farmer living at Deepdale, a short distance from here: it was feeding near his sheep, in a turnip-field.—*Alfred Roberts; King Street, Scarborough, January* 23, 1855.

Note on the Great Vulture of California (Cathartes *vel* Sarcoramphus Californianus). By Alexander S. Taylor, Esq., of Monterey. Communicated by J. H. Gurney, Esq.

The great Californian vulture — the northern representative of the condor of South America—is a species which is not only one of great intrinsic interest, but also one of extreme rarity in European collections, and respecting which we possess but meagre and scanty information.

The following notes, written on the spot by my ingenious and able friend Mr. Taylor, will, I am sure, be acceptable to the readers of the 'Zoologist,' and will require no comment from me, except it be to remark that, should the statement respecting the edible qualities of this vulture's egg excite a doubt, it is to be remembered that Le Vaillant makes a similar observation respecting the eggs of two of the large vultures of Southern Africa.

J. H. Gurney.

Catton, Norfolk, February 12, 1855.

A fine specimen of this bird was killed on the beach at Monterey, a few days ago. It was a female, and weighed, when killed, 20 lbs. avoirdupois. The following are its dimensions and proportions: from beak to the end of tail-feathers, 4 feet 6 inches; from tip to tip of wing, stretched out, 8 feet 4 inches; one wing, 3 feet 3 inches; tail-feathers, 12 in number and 15 inches long; from ruffle on the neck to vent, 2 feet 9 inches. It has 32 brachial feathers on each wing; the five long outer wing-feathers measure 2 feet 5 inches each; its breadth across the breast-bone is 8 inches; under the wings and over the breast it has a long triangular layer of dirty white feathers, and the outside of the lower part of the wings is also dashed with a few feathers tipped white.

The head, down to the commencement of the beak, is covered with a beautiful lemon-coloured loose skin. The beak is 1¾ inch long, and curved over with a point as hard as iron, with a waved edge as sharp as a knife: the under beak is a perfect half cylinder, into which fits, with the nicest accuracy, a hollow tongue of the same shape: this tongue is a curious feature, being 1⅞ inch long by ½ an inch broad, and is serrated with a hardened edging inclining down the gullet, which the bird uses with great force and power in reducing its food for digestion previous to swallowing.

The head is 7 inches long, and is barred over with a triangular-shaped band of featherets on a naked white skin: across the crown it measures 3 inches. The neck is bare of feathers, is of a pale dirty flesh-colour, and is 7 inches long from the base of the skull to the ruffle at the root of the neck; it is furnished with a ruffle of stiff broad feathers, with elongated points at the root of the neck, into which it buries its neck when at rest. Its legs are of a dirty white colour, and measure 10 inches from the knee-joint to the end of the claw of the main toe. The feet consist of four toes, which are armed with strong black curved claws; the middle toe is 5½ inches long, which includes a claw of 1½ inch in length; the hind toe with claw is only 1½ inch long. The breadth of the foot across the palm is 2¼ inches. The length of the legs, from the hip-joint to the end of the middle toe, is 15 inches.

The egg of the bird, as I am informed by a fifteen-year resident of California, is 3 inches broad by 5 inches long, about one-third larger than a goose's egg. Its colour is a dirty pale blue, spotted brown, and it is nearly as thick as an ostrich egg. The same person informs me that the female lays only one egg during a season, and makes her nest on the ground in the ravines of the mountains, and generally near the roots of the red-wood and pine trees. It is three months before the young bird can fly.

The eye of the bird is 1 inch long by 1 inch broad, and weighs half an ounce; the iris is a beautiful light pink. The brain is shaped like a heart flattened, and weighs 1 oz.; it measures 1½ inch in breadth and length. The heart, lungs and liver are nearly the dimensions of a year-old pig's; the gut is short and wide; the gall-bladder is ¾ths of an inch long. The bird, when erect, stands above 4 feet from the ground, and, from its huge wings, when spread out or even closely folded, looks a mountain of black feathers. The feathers are of a uniform dusky brown and black colour, with the exceptions mentioned. The body is covered closely with a long lead-coloured feathery down, with a thick skin (or hide rather) which is underlaid over the whole body, and particularly its under part, with a compact layer of bright yellow fat, of a strong musky smell. The flesh is of a bright arterial red, and, with large flakes of air-cells under the wings and breast-sides, copiously fills out the contour of the animal. The muscular and bony development of the wings, neck, head and legs, is enormous, and gives it immense strength and power in flight, and in attacking and devouring its prey.

Such is the description from nature of the Sarcoramphus Californianus or condor of the Rocky Mountains and the North-west.

This bird is closely allied to the condor of the Andes, but is totally distinct in features and habits from the turkey buzzard, with which it has been confounded, and which is rarely more than one-third its size. It soars at elevations of from 6,000 to 16,000 feet, and is found throughout the length and breadth of the Rocky Mountains of California and the North-west coasts, and is sometimes seen near San Francisco. It is particularly fond of fish, and is often found on the sea-shore watching for fish thrown on the beach, or even steals them from the Indians when catching salmon and mountain trout in the lakes and rivers of the great plains of the coasts. A dead whale thrown ashore is sure to bring some of them in sight, and a hunter killing a deer in the mountains is confident of their appearance as soon as the animal is wounded. They are also said to attack wounded deer or other animals, and kill them, and sometimes to carry off alive smaller creatures. They are also stated to carry off fish caught in rivers, sea and lake shallows; and though they will eat dead meat, they will not, like the turkey buzzard, eat carrion,—but this last wants further confirmation. When hungry they are exceedingly difficult to approach, but when gorged with food they are stupid, and fly or move with slow unwieldy motions. They soar at great heights, in circles, like the turkey buzzard, without moving their wings; but on a straight line they fly and sail by starts and flaps, at intervals of four or five minutes. Its range of vision is probably as great as that of the Andean condor, which is said to sight its objects at a greater distance than any other living creature.

The foregoing description will answer for the male bird, it being generally larger, and the colour of its head, neck and body being of rather brighter and deeper tint. The white feathers of the under wings are not so thick and numerous in the female as in the male.

Since writing the above, a hunter has informed me that three years ago he caught two young condors in the red woods of Santa Cruz county, and kept them more than a month. When young they have a strong smell, and are three months old before they fly. He added that the female is smaller than the male, and this without doubt, as he has often observed them. She lays two eggs in a year, which are hatched in about six weeks, near the middle of March: the eggs weigh about twelve ounces, and are better eating than any other eggs. They sometimes lay on the ledges of high rocks, but quite as often on tall trees, in the old nests of hawks and eagles. The plain diggers of Northern Mexico use the quills for putting their gold-dust in.

Three of these birds will eat a deer, and when they attack a man or animal, in defence, will nick a lump of flesh out in a minute. The barrel of the outer wing-feathers is 4 inches long by $\frac{3}{8}$ths of an inch in diameter: when the bird is standing, the long wing-feathers will overlap those of the tail more than 6 inches. The upper beak is of a horny white, with a thick, sharp, solid, curved-down and pointed end, and overlaps the lower by $\frac{5}{8}$ths of an inch. The mandibles are fully $\frac{1}{16}$th of an inch thick. The ear is $\frac{1}{2}$ an inch long, and 1$\frac{1}{2}$ inch from the eye, at the termination of the upper jaw bone.

When flying the white band of the wings and breast does not extend over the breast, but the breast and belly appear as an intermission of black. They float in the air rather than sail, and their motions aloft form the most elegant and graceful feature of the bird's habits.

On the 13th instant, at one o'clock in the afternoon, some object attracted a flock of these vultures. At first one suddenly appeared, but in the course of fifteen minutes I observed twenty of them, circling at an altitude of some four thousand feet, and immediately over the beach. When in the air they may be distinguished with a spy-glass from the turkey buzzard, by the white band under the wings. They are generally seen on the sea-shore at Monterey, in the latter fall months, in clear weather; but sometimes they make their appearance in a foggy atmosphere. As they come so they go—a company will be out of sight in fifteen minutes. They appear "to drop from some cavern in the sky," as described of the vulture of South Africa, by Le Vaillant, many years since.

One of these birds, killed a few days ago in Carmel Bay, near Monterey, a friend informs me, measured (including breast) 13 feet from tip to tip of wing.

A. S. Taylor.

November, 1854.

Correction of an Error.—I wish to correct an error into which I have unintentionally fallen in my "List of the Mollusca found in the Neighbourhood of Banbury" (Zool. 4540). The Pisidium cinereum is not found in this neighbourhood, the specimens [thus named] being very good ones of P. pusillum, as I have been kindly informed by Mr. Webster, of Birkenhead.—*R. H. Stretch ; Parsons Street, Banbury, February* 21, 1855.

The Entomology of Malacca. By ALFRED R. WALLACE, Esq.

To an entomologist Malacca seems, at first sight, a much finer locality than Singapore: the former is one of the very oldest European settlements in the East, while the latter is almost the newest. In the one, patches of the primæval forests remain on the hill-tops only, and all the low grounds are covered with new plantations of gambic, pepper and nutmeg, which afford scarcely an insect worth collecting: in the other, though for miles round the town the virgin forest has long since disappeared, its place is supplied by old plantations and shady groves of magnificent fruit trees, in which many of the insect inhabitants of the jungle appear to thrive as well as in their original domains. Further in the interior the whole country gradually merges into the vast forests of the centre of the peninsula, where the numerous Malay villages, embosomed in masses of cocoa-nut, jack and durian trees, and the settlements of Chinese tin miners, with the numerous paths and roads made by them, offer many tempting localities for the entomologist. And the promise is well fulfilled; for though some particular groups were far more abundant at Singapore, yet, taking insects of all orders, the superior richness of Malacca was very striking. My first locality was near a Chinese mining settlement, about twelve miles inland. My servant getting fever, I was obliged to return to Malacca in less than a fortnight, where I was attacked myself, and it was another fortnight before I was well enough to leave. I then went to a government bungalow, seven miles further in the jungle, and remained there a month. From thence I made an excursion to Mount Ophir, in the interior, where I remained a week, and then returned to Malacca and Singapore.

It was at my earliest station that I first fell in with the magnificent Ornithoptera Amphrisius, but for a long time I despaired of getting a specimen, as they sailed along at a great height, often without moving the wings for a considerable distance, in a manner quite distinct from that of any other of the Papilionidæ with which I am acquainted. To see these and the great Ideas on the wing is certainly one of the finest sights an entomologist can behold. It was, however, at my next station, and at the foot of Mount Ophir, that I first met with many of the fine Eastern Papilios, which are certainly superior in beauty and variety to those of South America: by variety I do not mean the number of species, but the different forms and style of colouring. Of the handsome green and blue spotted butterflies, P. Agamemnon, &c.,

I obtained three species, one I think new. This group is eminently beautiful. They fly with the greatest rapidity of any Papilios; the eye can scarcely follow them; in fact, they much resemble in habit the humming Sphinxes, and hover over flowers, or more frequently over damp places on the ground, with a constant vibration of the wings. P. Antiphates is the only species of the Protesilaus group, and is not very common. The grand P. Memnon flies very rapidly, and seldom settles. P. Iswara, and another species allied to P. Helenus, but I think new, have an undulating flight, very like that of the South American Morphos, or even sometimes approaching that of the large Noctuidæ, and they rest with the upper wings deflexed over the lower. The beautiful P. Polydorus flies weak and low, exactly like P. Æneas and allied species in South America. Then there are the elegant white and black marked species, P. Delessertii, P. Leucothoe, P. Nox, and a very fine species allied to Coon, which (if it is not P. Neptunus, *Guér*., of which I have no description) is quite new. But my greatest treasure among the Papilios was a magnificent green and gold powdered species, which (if it is not P. Crino or P. Brama) is also new. If we add to the above, Papilio Epius, P. Demolion, P. Pammon, and P. Tetrarchus, we have a series which for variety of form and colouring, as well as for size and beauty, no country can surpass.

But though we may claim for the Eastern Papilionidæ, and also for the Pieridæ, a superiority over those of America, it is far different in other groups. The Euplæas, though very beautiful, cannot compete with the exquisite Heliconidæ, to which they are so closely allied; neither have I yet met with any Nymphalidæ here which can compare with the Epicalias, the Callitheas and the Catogrammas of the Amazon. I obtained, however, several fine species of Charaxes and Adolias. The Cyllo Lowii of Borneo also occurs at Malacca, and the lovely little long-tailed Lycænidæ are the only group that at all compete with the Erycinidæ of America.

Turning now to the Coleoptera, the most remarkable feature is the almost total absence of those hosts of elegantly varied Longicorns which so delighted me at Singapore. The beetles altogether were exceedingly small and scarce, requiring the most persevering search to find any at all: yet they were very different from those of Singapore, and (principally through the persevering efforts of Mr. G. Rappa, a gentleman of Malacca, who spent a month with me in the jungle, and accompanied me to Mount Ophir) I was enabled to add 260 species to my already extensive collection.

The Therates dimidiata of the Singapore jungle was replaced at

Mount Ophir by a larger species, and the two fine Catascopi of the former place had also their Malacca representatives. I here obtained my first species of Tricondyla, and in the centre of one of the densest and darkest jungles was so fortunate as to find the strange Mormolyce phyllodes, under a huge boletus,—just where, from its resemblance to the curious Thyreoptera of Singapore, I had expected to discover it. Numerous species of Apoderus were very remarkable among the Curculionidæ, while most of the curious Anthribidæ of Singapore were wanting. Many exquisite species of metallic Cassidas were found for the first time; the Heteromera, too, were very numerous, and the Elaters and Buprestidæ furnished me with many new species. Of Lucanidæ I obtained eight species, mostly small, though one (the Dorcus Titanus, *Boisd.*) is quite a giant.

Amidst this variety of Coleoptera the most remarkable circumstance is the almost entire absence of the great family of the Cetoniadæ. Though constantly searching for them I procured but five species, and those all small and single specimens.

But it was in the other orders that I obtained the greatest amount of novelty and variety. In the little streams about the foot of Mount Ophir were hosts of new and beautiful dragon-flies, and even on the summit, at an elevation of 4000 feet, I obtained one species. Of these interesting but much-neglected insects I nearly doubled my collection, which now amounts to seventy-two species of true dragon-flies. The Hemiptera and Homoptera were perhaps most abundant of all, containing many fine species of Pæciloptera and Cercopis, as well as extraordinary Reduviidæ and brilliantly coloured Scutelleræ. On the muddy pools in the path to Mount Ophir were numbers of a very large and handsome Notonecta, which took the way as we approached, but, settling on the adjacent foliage, were easily captured. Of these interesting insects I added a hundred species to my collection, which now amounts to 228 species. The Orthoptera, though much fewer in numbers, were very interesting for the great variety of the Phasmidæ and Mantidæ. I have species of Mantis coloured like wasps, others like ants, and one brilliantly metallic. The winged Phasmidæ appeared endless: for a long time every one I captured was a different species, and the greater portion remained to the last unique. The Diptera, too, were very interesting. Among them I obtained the extraordinary Celyphus obtectus, or an allied species, which has the head of a fly to the body of a Scutellera among the Hemiptera. I also obtained three species of the curious stalk-eyed flies.

In order to give some idea of the entomological riches of this part of the world, I will add a summary of my collections at Singapore and Malacca, made within six months of my landing at the former place, but of which not more than four months were spent in collecting. It will also show, I hope, that I have given equal attention to every order of insects.

Coleoptera	940 species.
Lepidoptera (Diurnes 237) . .	353 „
Hymenoptera (Ants 35) . . .	173 „
Hemiptera 143; Homoptera 85 .	228 „
Neuroptera (Libellulidæ 72) . .	77 „
Orthoptera	70 „
Blattæ and Forficulæ	26 „
Diptera	136 „
Total . .	2003 „

Alfred R. Wallace.

Sarawak, Borneo,
November 25, 1854.

Proceedings of Societies.

Entomological Society.

February 5, 1855.—John Curtis, Esq., President, in the chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—The 'Zoologist' for February; by the Editor. The 'Athenæum' for January; by the Editor. The 'Literary Gazette' for January; by the Editor. The 'Journal of the Society of Arts' for January; by the Society. 'Proceedings of the Royal Society,' Vol. vii. No. 7; by the Society. 'Report of the Council of the Art Union of London for 1854,' 2 copies; by the Art Union. 'Revue et Magasin de Zoologie,' Nos. 11 and 12, 1854; by the Editor, M. Guérin-Méneville. Specimens of the silken fabric woven by caterpillars of Saturnia pavonia-media, accompanied by figures of the insect in its different stages of growth, with a summary description thereof, and the method used to procure the silk; presented by Herr Pretsch, through Mr. Newman.

President's Inaugural Address.

The President returned thanks for his election, and delivered an Inaugural Address, which was ordered to be printed.

Vice-Presidents.

The President nominated as his Vice-Presidents J. O. Westwood, Esq., E. Newman, Esq., and H. T. Stainton, Esq.

Exhibitions.

Brigadier Hearsey exhibited a case of Lepidoptera and three cases of Coleoptera, just received from Sylhet. Among the rarer Coleoptera were pointed out Jumnos Ruckeri, ♂ and ♀, numerous species of Cicindelæ and Lucanidæ, Lamia Stanleyi and Buprestis Edwardsii.

Mr. Stevens exhibited three perfect specimens of the rare beetle Cheirotonus Macleayii, from India.

Galls produced by Cynips Quercus-petioli.

Mr. Stainton exhibited a bunch of galls gathered from an oak near Exeter, and of the same kind as those exhibited by Mr. Rich at the November meeting. He also read the following extract from a letter of the correspondent who had forwarded the galls:—

"Having observed, in the 'Gardener's Chronicle,' a notice of the Proceedings of the Entomological Society, in which the subject of the oak-galls of this county was spoken of, I beg to say that they are more numerous now than at any other time I have observed them. They are confined to the young and mostly the long shoots which spring from oaks which have been cut down to the ground, and to those old stumps which grow in hedges, and are subject to be cut down in repairing the hedges, perhaps once in three or four years, or it may be more. It is curious to observe that, should an oak tree stand in a hedge, it is only the lower spray which is selected by the insects: it is exceedingly rare to see a gall upon the higher branches of a tree. It may be taken as a rule that the insects never attack a tree or bush above ten feet from the ground, but the nearer the ground the more numerous the galls. Some dwarf oak pollards I saw the other day, near Stoke Wood, which had been completely denuded of their branches last winter, and of course last spring the trees produced a goodly crop of young shoots all round: to see these trees now without any leaves, and the young one-year old branches almost covered with galls like a gooseberry bush laden with fruit, is very curious and striking.

"It is rather difficult now to find any galls containing insects, for it appears that a portion of the insects make their escape in the autumn and the rest in the spring following; but the little prying tits (*Parus cæruleus*) appear to have found them out, and thousands are devoured by these birds: it is astonishing how soon they work a hole and extract the larva, which no doubt is a very dainty morsel, particularly this hard, frosty weather.

"As for the species of Cynips which causes these galls, if it is C. Quercus-petioli certainly that name was wrongly applied, for the galls on the petioles of the leaves of oak never attain that woody consistence which is peculiar to this kind of gall. I sent some of these galls, three or four years ago, to Mr. Westwood, through the 'Cottage Gardener,' asking for the name, and received for answer that it was Cynips terminalis."

Mr. Stainton pointed out that the galls now before the meeting were well figured by Réaumur,* and that no subsequent author appeared to have referred to his figures.

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* 'Mémoires' tome iii. 452, pl. 41, figs. 7—15.

Indian Method of preparing the Silk of Bombyx Cynthia.

Mr. Westwood read, from the 'Journal of the Asiatic Society of Bengal,' vol. vi., brought by Brigadier Hearsey, the following account of the method used in India to prepare the silk from the cocoons of Bombyx Cynthia.

"The cocoons are put over a slow fire, in a solution of potash, when the silk easily comes off: they are taken out, and the water slightly pressed out; they are then taken one by one, loosened at one end, and the cocoon put over the thumb of the left hand; with the right they (*sic*) draw it out nearly the thickness of twine, reducing any irregularity by rubbing it between the index and thumb: in this way many cocoons are joined on. The thread is allowed to accumulate in heaps of a quarter of a *sur* (*sic*); it is afterwards exposed to the sun or near the fire to dry; it is then made into skeins, with two sticks tied at one end, and opening like a pair of compasses: it is then ready to be woven, unless it has to be dyed."

Mr. Newman read the following note, intituled

"*A Word for the Cockroach.*

"'There is nothing new under the sun:' so says the proverb. I believed, until a few days back, that I possessed the knowledge of a fact in the dietary economy of the cockroach of which entomologists were not cognizant, but I find myself forestalled; the fact is 'as old as the hills:' it is that the cockroach seeks with diligence, and devours with great gusto, the common bed bug. I will not mention names, but I am so confident of the veracity of the narrator that I willingly take the entire responsibility. 'Poverty makes one acquainted with strange bed-fellows,' and my informant bears willing testimony to the truth of the adage: he had not been prosperous, and had sought shelter in a London boarding-house: every night he saw cockroaches ascending his bed-curtains; every morning he complained to his very respectable landlady, and invariably received the comforting assurance that there was not a 'black beetle' in the house: still he pursued his nocturnal investigations, and he not only saw cockroaches running along the tester of the bed, but, to his great astonishment, he positively observed one of them seize a bug, and he therefore concluded, and not without some show of reason, that the cockroaches ascended the curtains with this especial object, and that the minor and more odoriferous insect is a favourite food of the major one. The following extract from Webster's 'Narrative of Foster's Voyage'* corroborates this recent observation, and illustrates the proverb which I have taken as my text:—'Cockroaches, those nuisances to ships, are plentiful at St. Helena; and yet, bad as they are, they are more endurable than bugs. Previous to our arrival here, in the Chanticleer, we had suffered great inconvenience from the latter, but the cockroaches no sooner made their appearance than the bugs entirely disappeared: the fact is that the cockroach preys upon them, and leaves no sign or vestige of where they have been: so far it is a most valuable insect.'"

Coccus arborum-linearis, Geoff.

The President read the following extract of a letter from Dr. A. Fitch:—

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* 'Foster's Voyage,' Vol. i. 373.

"My esteemed friend,—I take the liberty to enclose to you some pieces of bark covered with the scales of a Coccus which is making appalling havoc in the orchards of Illinois and Wisconsin, and is abundant in my own neighbourhood. I have supposed this to be the Aspidiotus linearis (Coccus arborum-linearis, *Modeer*, *&c.*), but have at hand no good description of that species, and am not without suspicions that it may be your A. Ostreæformis or conchiformis, these names being far more applicable to these scales than is that of linearis. As this insect will be embraced in the Report on insects injurious to fruit trees, which I am now preparing (for the New York State Agricultural Society, pursuant to directions of the State Legislature), I wish to be more certain with regard to its true name. A word from you, in reply to my inquiry, will be very gratefully received."

The President exhibited the insects *in sitû:* they were the Coccus arborum-linearis, *Geoff.*, and the C. conchiformis he believed of Gmelin. The President remarked that "It is a subject for congratulation that these matters are being taken up by the State, and, from the valuable work of Dr. Harris having reached a second edition, it is evident these important objects will in future not be neglected in the United States."

Proposed Monograph of Elateridæ.

The President said M. Candeze of Liege, one of the authors of the 'Catalogue des Larves des Coléoptères,' had written to him to make known his intention of publishing a complete Monograph upon the Family Elateridæ, which he estimates at 3000 species. He solicits the assistance and cooperation of the entomologists of this country, by the loan of specimens, especially those of the East Indies and Australia. Most of the professors in the different cities of Europe have promised to lend him specimens for description, which he undertakes to return speedily.* He is one of the pupils of Professor Lacordaire, to whom the Catalogue is dedicated; and the President will be happy to transmit to him any specimens which the Members are willing to send him, provided they be entrusted before the end of February, when his friend will leave London.

Note on Psyche helicinella.

Under this title Mr. Douglas read the following remarks:—

"More than a century ago Réaumur, in his 'Mémoires,'† recorded the discovery of some curious heliciform cases, which he believed to be those of the larvæ of a moth, although he reared from them only 'une petite mouche noire et à quatre ailes,' which Siebold thinks must have been a Chalcis parasitic on the larva.

"Professor Siebold,‡ in a notice of the recent discovery by several entomologists of helical cases, which he regards as identical with those mentioned by Réaumur, states the curious fact that none of the finders thereof, nor any other entomologists, had up to that time had the good fortune to rear from any of these cases a winged Lepidopterous insect, but either a Chalcis, a Pteromalus, or a vermiform female like that of a Psyche, which Siebold named provisionally P. helix.

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* England, he writes, has not responded to his appeal in the name of Science, which has been made to the Entomological Society of London through Mr. Westwood. His first volume will appear at the end of the summer, and he especially wants the genera Agrypnus, Campsosternus, Hemops and Crepidomenus.

† Tome iii. Part 1, 12mo, p. 249.

‡ Trans. Ent. Soc., Vol. i. n. s., page 238.

"Herrich-Schäffer described and figured* a Psyche helicinella, male, from specimens sent from Sicily by Mann, who only suspected they had escaped from spiral cases which he found in the vicinity of their capture.

"Bruand† has described and figured a Psyche helicinella, male, but does not state that he ever identified the perfect insect with the case. On the contrary, speaking of the inhabitant of the helical cases, he says that 'the caterpillar is difficult to rear; and for my part, after three unsuccessful attempts, I have ceased trying to obtain the imago in captivity. It is probable that some atmospheric conditions (the morning dew for example) are necessary to its coming forth. The caterpillar fed quite well up to the time of its transformation, then it commenced to wander about in the vase or box in which it was placed, and at length fixed itself near the partition; . . . then nothing came out—it died miserably.' Neither does he state that he has reared the male from the *pupa* found in the natural habitat, so that it may be inferred he also figured the insect from captured specimens.

"Lastly, M. Nylander has recorded‡ that he raised from a helical case which he found in 1853, in the South of France, a male Psyche.

"Whether the spiral cases, seen by so many observers, all belong to one species of larva is not certain, but, assuming that they do, it would seem that M. Nylander has been the first to rear the male insect, which he refers to Psyche helix, *Sieb.* = P. helicinella, *H.-S.*

"The larvæ inhabiting these spiral cases appear to be polyphagous, having been found on Cheiranthus odoratum (*Vallot & Tarnier*), Teucrium Chamædrys (*Bruand*), Anthyllis vulneraria, Lotus corniculatus, Gnaphalium arenarium and olive-trees (*Zeller*), Atriplex laciniata (*Kollar*), and Artemisia vulgaris (*Reutti*).

"I have thought it worth while to collate and bring these facts before the Society, as I think it probable, judging from the wide range of the species (it being generally distributed in Italy, France and Germany), that it may be found in this country, if our collectors know what to look for. There also attaches to the species another consideration of interest, it being one of those insects of which fertile eggs are constantly laid without the intervention of the male, as affirmed by Siebold and Reutti.

"I avail myself of this opportunity to remark that out of the eighty-two species of Psychides enumerated by M. Bruand, only ten or eleven have yet been detected in Britain. When we remember that of this latter number two§ are not known on the Continent, I cannot but think that we have to find in this country some of the continental species, and probably some more not yet recognised abroad."

Descriptions of Lucanidæ.

Mr. Westwood read a paper descriptive of many new species of Lucanidæ, illustrated with figures of the insects described.

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* System. Bearbeit., Bd. ii. figs. 108, 109.

† 'Essai Monographique sur la tribu des Psychides,' p. 73.

‡ 'Annales de la Soc. Ent. de France,' 1854, p. 336.

§ P. reticella, *Newm.*, and P. inconspicuella, *Stainton* (M. Bruand assigns both these names to Mr. Curtis).

New Part of the 'Transactions.'

Part 3 Vol. iii. of the 'Transactions,' published in January, was laid on the table. —*J. W. D.*

Society of British Entomologists.

Annual Meeting, January 2, 1855.—Mr. H. Harding, President, in the chair.

The Secretary laid before the Members a statement of the affairs of the Society.

The President said that it gave him great pleasure to hear, from the Report read by the Secretary, of the flourishing state of the Society. There was only one drawback—the slow progress made in the addition of species to its cabinet during the past year: he hoped the Members would bear this in mind, and make up for it in the ensuing season.

The President then said "According to custom I will, with your permission, take a review of the past year. The season of 1854 has by most entomologists been considered a very bad one: the beautiful mild weather in the spring is, without doubt, remembered by all; vegetation felt the influence of the bright sun and warm nights; many larvæ were making rapid progress in consequence of the early bursting of the young buds, but a series of cold nights and blighting winds from the North-east, until the early part of June, destroyed them. On the 10th of June I went to the coast: what was the prospect of vegetation there? the whitethorn, which should have been in blossom, had its leaves blackened and dried up: where now were all the larvæ which were called into life by the early spring? all dead for want of food. This and the late cold weather was no doubt the cause of the bad season for many species: the Noctuæ, excepting in a few instances, made their appearance in the usual course. Through the exertions and enterprising spirit of our entomologists, however, many rare and some new species have been taken, for some account of which I refer you to Stainton's 'Entomologist's Annual,' which is now before me on the table, a work which has been kindly presented by the author, who I hope may live long to continue it. I am much pleased with the observations of the editor at page 3: they breathe a true scientific spirit, not always met with even in those calling themselves scientific men; but it is a spirit that ought to animate all inquirers after truth. In conclusion, I would remind my friends that there is a great deal to be done among the smaller Lepidoptera: many discoveries are in store for those who will seek them, but it ought always to be borne in mind that they must be diligently sought after. I intend in a few weeks to begin the campaign for 1855, and exhort all my entomological friends to do likewise. Science 'expects every man to do his duty.'"—*J. T. N.*

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PORTION OF CONTENTS.

lights, or Insects injurious to Vegetables—Gooseberry-Grub; the Fly described: g the Eggs; the young Grub; Voracity of the Grubs; the Grub described; ge of Skin; Burrows in the Earth; Popular Remedies.—Aphis on Plant-Louse; y it causes; Economy of.—Hop-Fly; Influence on Crop of Hops; Influence on uty; First Appearance of; Insect-enemies of; Remedies.—American Blight.—Weevil; Description of; Economy of; Remedies.—Apple-Moth.—Apple-Grub; omy of.—Little Ermine Moth.—Yellow-Tail.—Turnip-Fly; Destructive Powers conomy of; Remedies.—Turnip-Nigger; Description of Parent Fly; Economy escription of the Grub; Remedies.—Turnip-Weevil.—Turnip-Aphis.—Aphides ples, Poplar-leaves and on Roots.—Ants and Aphides.

Opinions of the Press.

There is a wood-cut, some of them most exquisite, to each chapter, and tail-s, after the delightful manner of Bewick, are scattered through the work. It is a delightful book.—*Jerrold's Weekly News.*

The most charming contribution to Natural History since the days of good old rt White. These Letters are well worthy of consultation by all gardeners and ulturists, since the descriptions of these facts are perfectly trustworthy, being in es the result of observation."—*Westminster Review.*

The collection of facts and observations respecting blights, or insects injurious to ation, are especially worthy attention, and we recommend them strongly."—*eners' and Farmers' Journal.*

A very amusing and instructive volume."—*Chambers' Edinburgh Journal.*

This work contains by far the best account extant of those insects which are ious to vegetation, and known by the name of *blight:* the descriptions are ss remarkable for their accuracy than for their popular style and graphic r."—*Knox's Ornithological Rambles.*

JOHN VAN VOORST, PATERNOSTER ROW.

CONTENTS.

Proceedings of Societies.—Entomological Society—President's Address, 4605.
Quadrupeds.—Black Hare shot at Brome, *C. R. Bree, Esq.*, 4628.
Birds.—On the three Species of Divers or Loons, *A. G. More, Esq.*, 4628. Rare Birds captured near Stowmarket, *C. R. Bree, Esq.*, 4629. Note on the Eagle which is said to attack the Trained Falcons of Asiatic Falconers, *J. H. Gurney, Esq., M.P.*, 4631. The Lapland Bunting in Norfolk, *H. Stevenson, Esq.*, 4631. Remarkable Variety of the Woodcock, *Edward Newman*, 4631. Occurrence of the Shag, the American Scaup and the Continental Wagtail near Scarborough, *Alfred Roberts, Esq.*, 4631. Note on the Great Vulture of California, *A. S. Taylor, Esq.* (communicated by *J. H. Gurney, Esq.*), 4632.
Mollusks.—Correction of an Error, *R. H. Stretch, Esq.*, 4635.
Insects.—The Entomology of Malacca, *A. R. Wallace, Esq.*, 4636.
Proceedings of Societies.—Entomological Society, 4639. Society of British Entomologists, 4644.

TO CORRESPONDENTS.

A great number of valuable Papers unavoidably stand over: among them are Dr. Knox's account of the Estuary Salmon; a full description of a second specimen of Bartram's Sandpiper, which has occurred in the Eastern Counties, &c., &c. I have to regret the space occupied by my Address to the Entomological Society: it seems necessary to state that it is printed in the 'Zoologist' solely to save expense to the Society, and that 24 pages of 'Zoologist' matter are given, in order that the entire charge may fall, as it ought to do, on myself: 8 of these additional pages were published in January; 8 are in the present (March) number; and 8 still remain due.—*Edward Newman.*

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